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A COMPARISON OF THE WORKBOOK AND DEMONSTRATION METHOD OF TEACHING FIRST AID ON THE SEVENTH GRADE LEVEL

Submitted by

Helen T. Mackey

(B.S. in Phys. Ed., Boston University, 1940)

In partial fulfillment of requirements for
the degree of Master of Education
June - 1948

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ACKNOWLEDGEMENTS

I wish to express many thanks to Dr. Leslie W. Irwin, Professor of Health and Physical Education, Boston University, for his inspiration, counsel and guidance in planning and executing this thesis.

Also, I sincerely thank Mr. G. Arthur Wheeler, Principal of the West Junior High School, Watertown, Massachusetts, for giving his permission for carrying on the experiment in his school.

ACKNOWLEDGEMENTS

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CHAPTER I

CHAPTER I

INTRODUCTION AND PURPOSE

The term Health Education in modern usage is quite broad and comprehensive in scope. It may include all educational factors which have a bearing, either directly or indirectly, on the development and maintenance of optimum health of both the individual and the group. It involves habits and attitudes, practices, appreciations, and knowledges of health and healthful living in so far as they are related to, and affect the health welfare of the world.

Educators are realizing more and more that there are new goals to be reached, and new procedures must be employed in the education of tomorrow's citizens. Emphasis is being placed on the development of understanding through experiences that build desirable interests, attitudes, and ideals.

Human beings possess several basic needs, such as the need for physical and mental activity, for successful achievement, for recognition, and for security. Children's interests are of great importance. They reveal the level of development attained by the child, and the avenues open for further progress.

In school work we are faced with the utilizing, enriching, and extending of the interests which children bring to us. Children work hardest and accomplish most when the school's

program is based upon their present needs, interests, and capacities.

True learning is brought about through actual experience. The first concept of learning is the manner in which learning takes place. The second concept is that it requires time to develop habits and practices even when actual experiences are provided.

If knowledge about hygiene is to help in determining desirable health conduct, it is important that lessons upon health be clearly comprehended, since misunderstanding in this field may result in serious errors. Young adolescents, finishing the elementary school, are approaching their limits of intellectual capacity just as they are nearing their limits of stature. Indeed they are capable of grasping concepts which are far beyond the reach of the child just entering the elementary school. The facts regarding growth in ability to grasp concepts make imperative the selection of materials which are suited to the mental development of the child.

Schools are giving recognition to the close relationship between learning and doing, and are providing more first-hand experience than formerly. Knowledge and skills are being acquired in relation to need and use. Through the development of units of work, projects, and life-like enterprises, children are being encouraged to see an undertaking through from beginning to end. They are being encouraged to take an aggressive part in purposeful activity.

Time is set aside for specific drill on useful skills. The skills then will be more meaningful because of their needed use in the unit of work, and the unit will be carried out more effectively because of increased mastery of skills.

The field of health is so extensive that the author feels that one phase studied and analyzed would be more specific and therefore more valuable. Since the question of health instruction presents various and multiple phases, the author has chosen the one division - First Aid.

The first aid program should be preventive to assure future health. Since the school should teach pupils how to do better the desirable things they are sure to do in life, some work in first aid should be given. A knowledge of first aid is a vital necessity not only to prevent accidents but also to prevent further damage, crippling results, or even death, since accident deaths according to surveys are appalling. The true conception of first aid should include those procedures necessary to save life, to prevent further injury, and to alleviate severe suffering. Study and practice in learning to care for injuries make the child realize the seriousness of the accident and, at the same time, provide him with the skill to aid others who are injured.

The First Aid Course given to the seventh grade girls followed the workbook "My Safety and First Aid Book."1/ Group I

1/ Irwin, Leslie W. - My Safety and First Aid Book - Lyons & Carnahan - Chicago - copyright 1945.

used the workbook and Group II did not have a workbook.

The scope of instruction included the following topics and sub-topics:

Unit 2 - HOW YOUR BODY WORKS

- Why You Should Know Your Body
- Your Body Frame
- How Your Body Moves
- Fuel For Your Body
- The Air We Breathe
- How Fuel And Oxygen Are Moved In Your Body
- How The Body Parts Work Together
- Study Problems

Unit 3 - THE CONTROL OF GERMS

- What Are Germs?
- Where And How Germs Grow
- Infection And Disease Germs
- The Spread And Control Of Disease Germs
- How Your Body Defends Itself Against Germs
- Immunity To Diseases
- Body Resistance to Diseases
- Study Problems

Unit 4 - GENERAL FIRST-AID CARE

- Important Things To Remember In Giving First Aid
- First Aid For Shock
- First Aid For An Unconscious Person

How And When To Call A Doctor

Moving Injured Persons

Important Things To Remember In Moving An Injured Person

Moving An Injured Person With A Stretcher

Other Ways Of Moving Injured Persons

The Fireman's Drag

Study Problems

Practice Activities

Unit 5 - DRESSINGS AND BANDAGES

What Is A Dressing Or Compress?

Kinds Of Dressings And Compresses

How To Sterilize Cloth For Dressings And Compresses

How To Apply A Dressing Or Compress

The Use Of Bandages In First Aid

Kinds Of Bandages Used In First Aid

The Square Or Reef Knot

Points To Remember About Bandages

Open Triangular Bandages

Folded Cravat Bandages

Study Problems

Practice Activities

Unit 6 - SERIOUS FIRST AID EMERGENCIES

What Are Some Of The Serious First Aid Emergencies?

Bleeding from Arteries, Veins And Capillaries

First Aid For Severe Bleeding
Oxygen For Life
Stoppage Of Breathing From Drowning
Stoppage Of Breathing From Electric Shock
Stoppage Of Breathing From Poisonous Gas
Artificial Respiration
First Aid For Choking
How To Prevent Poisoning
What Things Are Poisonous?
First Aid For Poisoning
Study Problems
Practice Activities

Unit 7 - FIRST AID CARE OF COMMON WOUNDS

Minor Wounds
What Are Antiseptics?
First Aid For Minor Wounds
First Aid For Punctured Wounds
First Aid For Animal Bites
Wounds Of The Eye
First Aid For Eye Wounds
Study Problems
Practice Activities

Unit 8 - FIRST AID FOR INJURIES FROM HEAT AND COLD

How Do Burn Injuries Happen?
How Burns Happen In The Home
What To Do If Your Clothing Catches Fire

First Aid For Burns
Sunburn
Sunstroke
Heat Exhaustion
Injuries From Cold
Study Problems
Practice Activities

> "This book is for use in the upper elementary grades. It was tried out with upper elementary school pupils over a period of ten years."[2]

A brief description of its use in teaching by the author follows.

At the end of each unit of this workbook are study problems and practice activities which were completed by Group I. The study problems consist of questions to be answered, true-false tests, completion tests, objective and subjective testing. There are also pictures which could be studied by the group with the workbooks.

Review tests for each unit are included. Before the health course was begun, these review tests were given to all the seventh graders and the scores were tabulated. This is called the pretest. This pretest was given as a diagnosis, i.e. the pupils were tested for their knowledge before the unit was studied.

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[2] Irwin, Leslie W.- My Safety and First Aid Book - Lyons & Carnahan - Chicago - copyright 1945.

At the completion of each unit, the review test for the particular unit was given. This test is called the unit test.

After all units had been completed, the same test that was given before the test was begun, (pretest), was administered, and scores were tabulated. This so-called post-test or mastery test is used to test the mastery of concepts.

Before each test was given, the student was instructed not to guess. The student was also instructed not to ask any questions.

There were two types of tests given - True-false test and a Multiple-choice test. The score was the number of statements marked correctly. The scoring of the papers was done with a scoring key prepared for the workbook.

Workbooks are used to a great extent in the field of science and education. However, among educators there has been a wide divergence of thought regarding the use of workbooks. Because there is so much controversy in the value of workbooks, it is worthy of research and enlargement.

The purpose of the author in conducting this research was to attempt to determine the effectiveness of the use of workbooks in a phase of health education - first aid. A study of the literature indicated that this problem, scientific in nature, had never been studied before.

The following scientific analysis was made in order to prove just how effective and successful workbooks were in

instructing pupils.

1. A comparison of the gain of the workbook group and the non-workbook group in respect to the pretest and the unit test was made.

2. A comparison of the gain of the group with the workbooks with the gain of the group without the workbooks between the pretest and the post-test was made.

CHAPTER II

CHAPTER II

PROCEDURE

The grade level of the group studied by the author were seventh grade girls in the West Junior High School, Watertown, Massachusetts.

The seventh grade classes used for this experiment were grouped according to Intelligent Quotient, based on the Pintner - Intermediate B test and Achievement Mark computed on the basis of the Progress B type Achievement Test. The Intelligent Quotient tests were given the sixth grade before these pupils entered the junior high school as part of the regular school procedure. The sixth grade teachers administered these tests to the pupils so that, whatever outside forces affected the pupils while taking this test, were beyond the author's control.

The seventh grade health classes were grouped so that the average Intelligent Quotient of each class was in both groups. Upon entering junior high the following groupings are made: 7E - group I - top division; 7A - group II - second highest; 7D - group III - third division; and 7F - group IV - fourth division. The only grouping the author was permitted to make was to put two seventh grade divisions in one class.

As a basis for judging, the following grouping was made: 7E and 7F was one health class; 7A and 7D was another

health class. For convenience, let us say that 7E and 7F is Group I and 7A and 7D is Group II. The range of intelligence for Group I was 60 (143-83). The range of Intelligence for Group II was 44 (124-80). The mean Intelligent Quotient for Group I was 109.05. The mean Intelligent for Group II was 106. (Table 1).

The topics were taught in the same order as they are presented in this thesis.

Group I used the workbook "My Safety and First-Aid Book."[3] Group II did not have a workbook. Both groups had health once a week.

Both groups were taught in exactly the same manner except for one variable - Group I had workbooks to use and Group II were without workbooks. In Group I each girl read a subtopic, after which important points were emphasized and discussed, and the study problems at the end of the unit were answered. In Group II the unit was read to the class. Whenever important points were reached, they were emphasized and discussed in the same manner as was done in Group I, but here the pupils wrote these points down in their notebooks.

As far as possible, pupils were required to demonstrate the first aid work as it was taught. Half the pupils in each group acted as patients and the other half administered the first aid. So that everyone would get a chance to administer

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3/ Irwin, Leslie W. - My Safety and First Aid Book - Lyons & Carnahan - Chicago - copyright 1945.

first aid, the procedure was reversed. Both groups did this in the following: artificial respiration; carries - hands and wrists seat carry, arms and legs carry, chair used to carry an injured or ill person, and the fireman's drag; bandaging - roller finger bandage, open arm sling for the arm, open triangular bandage for the hand, open triangular bandage for the head, open triangular bandage for the shoulder, open triangular chest bandage, cravat bandage for the head, cravat bandage for the jaw, cravat wrist sling, cravat bandage for the elbow, and cravat ankle bandage.

The experiment extended over twenty class periods of forty minutes each. The time element was kept uniform for each group. If a pupil was absent one or more periods, she was required to make up the time lost before the final test was given.

In order to obtain an objective measure of the amount of improvement that had taken place, the fifty-two pupils comprising the group with the workbooks and those without workbooks were tested at the close of twenty periods of study by means of the Review Unit Test. The retest was the same as the pretest. The conditions under which both tests were given were kept uniform.

CHAPTER III

CHAPTER III

THE DATA

PRESENTATION AND INTERPRETATION

The results of the experiment are presented in the following tables. Table I records the reliability of the difference between the means of Group I and Group II. The scores have been tabulated for each group and the mean and standard deviation for each group has been found. The thirty-one pupils in Group I yielded a mean score of 109.05 and a standard deviation of 10.10, while the twenty-one pupils in Group II yielded a mean score of 106 and a standard deviation of 10.32. The true difference between the means, 3.05, tells us that the students in Group I will score slightly higher than will the students in Group II. However, the critical ratio 1.05 shows that this difference is not statistically significant. The level of significance for this study is 2.576 of the one percent level.

TABLE I

Reliability of the Difference Between

the Intelligent Quotient Means of Group I and Group II

	MEAN I.Q.	S.E. M.	S.D.	DIFF. M_1-M_2	S.E. DIFF.	C.R.
Group I	109.05	1.81	10.10	3.05	2.89	1.05
Group II	106.00	2.25	10.32			

TABLE II

Comparison of Group I and Group II in the Pretest - Unit 2

	MEAN PRETEST	S.E. M.	S.D.	DIFF M_1-M_2	S.E. DIFF.	C.R.
Group I	11.12	.68	3.83	.30	1.67	.56
Group II	10.82	1.53	7.01			

A comparison of the pretest unit 2 is shown on Table II. The mean of Group I is 11.12 compared with a mean 10.82 for Group II. The mean difference between the two groups is shown as .30. The critical ratio, .56 in favor of Group I, is not statistically significant. There are forty-two chances in one hundred that it represents a true difference.

TABLE III

Comparison of Group I and Group II in the Pretest - Unit 3

	MEAN PRETEST	S.E. M.	S.D.	DIFF. M_1-M_2	S.D. DIFF.	C.R.
Group I	8.61	.44	2.43	.79	1.37	.42
Group II	7.82	1.30	5.92			

Table III compares the pretest of Unit 3 for Group I and Group II. The mean for Group I is 8.61. The mean for Group II is 7.82. The mean difference between the two groups is .79 in favor of Group I. The critical ratio .42 shows that

there is no statistical significance between either group. There are thirty-two chances in one hundred that it represents a true difference.

TABLE IV

Comparison of Group I and Group II in the Pretest - Unit 4

	MEAN PRETEST	S.E. M.	S.D.	DIFF. M_1-M_2	S.E. DIFF.	C.R.
Group I	10.42	.66	3.67	.30	1.13	.16
Group II	10.72	.92	4.20			

In Table IV the comparison of pretests for Unit 4 have been made. Group I made a mean score of 10.42. Group II made a mean score of 10.72. The difference between the means is .30 in favor of Group II. The critical ratio .16 shows no statistical difference. There are twelve chances out of one hundred that it represents a true difference.

TABLE V

Comparison of Group I and Group II in the Pretest - Unit 5

	MEAN PRETEST	S.E. M.	S.D.	DIFF. M_1-M_2	S.D. DIFF.	C.R.
Group I	9.58	.62	3.45	.86	.88	.61
Group II	10.44	.63	2.90			

Table V compares Group I with Group II on Unit 5. Group I has a mean 9.58. Group II has a mean 10.44. The difference of the means is .86 in favor of Group II. The critical ratio .01 shows that this difference is not statistically significant. There are not any chances in one hundred that it represents a true difference.

TABLE VI

Comparison of Group I and Group II in the Pretest - Unit 6

	MEAN PRETEST	S.E. M.	S.D.	DIFF. M_1-M_2	S.D. DIFF.	C.R.
Group I	9.40	.72	4.01	.49	.96	.06
Group II	8.91	.64	2.93			

The pretest of Unit 6 has been compared with Group I and Group II and the results are found in Table VI. Group I has a mean pretest score of 9.40. Group II has a mean pretest score of 8.91. The difference of the means is .49 in favor of Group II. The critical ratio .06 shows that this difference is not statistically significant. There are four chances in one hundred that it represents a true difference.

TABLE VII

Comparison of Group I and Group II in the Pretest - Unit 7

	MEAN PRETEST	S.E. M.	S.D.	DIFF M_1-M_2	S.D. DIFF.	C.R.
Group I	10.82	.99	5.53	1.26	1.56	.09
Group II	9.56	1.21	5.53			

In comparing the two groups for Unit 7 we find that Group I has a mean pretest score 10.8 and Group II has a mean pretest score of 9.6. The mean difference .14 is in favor of Group I. The critical ratio .09 tells us that there is no difference, statistically, between the groups, and that there are six chances in one hundred that it represents a true difference.

TABLE VIII

Comparison of Group I and Group II in the Pretest - Unit 8

	MEAN PRETEST	S.E. M.	S.D.	DIFF. M_1-M_2	S.E. DIFF.	C.R.
Group I	9.34	1.02	5.66	.52	1.50	.04
Group II	9.86	1.11	5.11			

When comparing the pretest Unit 8 of Group I with Group II, we find that Group I has a mean 9.34, while Group II

has a mean 9.86. The difference between the means is .52. The critical ratio .04 indicates that there are only two chances in one hundred that it is a true difference.

TABLE IX

Comparison of Group I and Group II in the Test - Unit 2

	MEAN TEST	S.E. M.	S.D.	DIFF. M_1-M_2	S.E. DIFF.	C.R.
Group I	25.78	.61	3.40	1.13	.83	1.33
Group II	26.91	.57	2.62			

Table IX shows the comparison of Group I and Group II in the test scores of Unit 2. The mean for Group I is 25.78. The mean for Group II is 26.91 in favor of Group II. The critical ratio 1.33 indicates there is no statistical significance between the groups. There are eighty chances in one hundred that it is a true difference.

TABLE X

Comparison of Group I and Group II in the Test - Unit 3

	MEAN TEST	S.E. M.	S.D.	DIFF. M_1-M_2	S.E. DIFF.	C.R.
Group I	22.24	.55	3.04	1.10	.72	1.39
Group II	21.14	.46	2.10			

Table X compares Group I with Group II in the test scores after studying Unit 3. Group I has a mean score 22.24. Group II has a mean score 21.14. The difference between the two groups is shown as 1.10 in favor of Group I. The critical ratio 1.39 shows that this difference is not statistically significant. There are eighty-two chances in one hundred that it is a true difference.

TABLE XI

Comparison of Group I and Group II in the Test - Unit 4

	MEAN TEST	S.E. M.	S.D.	DIFF. M_1-M_2	S.E. DIFF.	C.R.
Group I	23.54	.27	1.52	1.12	.38	2.63
Group II	22.42	.27	1.22			

In comparing Group I and Group II in the test on Unit 4 as shown in Table XI, we see that Group I has a mean score 23.54. Group II has a mean score 22.42. The mean difference 1.12 is in favor of Group I. The critical ratio 2.63 indicates there is a statistical significance.

There are ninety-eight chances in one hundred that it is a true difference.

TABLE XII

Comparison of Group I and Group II in the Test - Unit 5

	MEAN TEST	S.E. M.	S.D.	DIFF. M_1-M_2	S.E. DIFF.	C.R.
Group I	15.24	.51	2.82	1.86	.66	2.73
Group II	13.38	.42	1.92			

Table XII shows us that Group I has a mean test score 15.24 as compared to Group II with a mean score 13.38. The difference of both groups is 1.86 in favor of Group I. The critical ratio 2.73 indicates there is a statistical significance. This indicates there are ninety-eight chances in one hundred that it is a true difference.

TABLE XIII

Comparison of Group I and Group II in the Test - Unit 6

	MEAN TEST	S.E. M.	S.D.	DIFF. M_1-M_2	S.E. DIFF.	C.R.
Group I	17.32	.56	3.14	.68	.82	.73
Group II	18.00	.60	2.76			

In Table XIII we have the comparison of Group I and Group II in the test scores of Unit 6. The mean for Group I is 17.32. The mean for Group II is 18.00. The difference

between the two groups is .68 in favor of Group II. The critical ratio is .73 which means there is no statistical significance. There are fifty-two chances in one hundred that it is a true difference.

TABLE XIV

Comparison of Group I and Group II in the Test - Unit 7

	MEAN TEST	S.E. M.	S.D.	DIFF. M_1-M_2	S.E. DIFF.	C.R.
Group I	22.58	.39	2.17	1.78	1.06	1.69
Group II	20.80	.99	4.53			

Table XIV compares Group I and Group II in the test after studying Unit 7. The mean for Group I is 22.58. The mean for Group II is 20.80. The difference between the two groups is 1.78 in favor of Group I. The critical ratio 1.69 indicates that there is a tendency toward a statistical significance. There are ninety chances in one hundred that it is a true difference.

TABLE XV

Comparison of Group I and Group II in the Unit Test - Unit 8

	MEAN TEST	S.E. M.	S.D.	DIFF. M_1-M_2	S.E. DIFF.	C.R.
Group I	20.88	.48	2.68	2.96	.75	4.0
Group II	17.92	.58	2.65			

Table XV compares Group I and Group II in the test after studying the unit. The mean for Group I is 20.88. The mean for Group II is 17.92. The difference between the two groups is 2.96. The critical ratio 4.0 means there is a statistical significance. There are ninety-eight chances in one hundred it represents a true difference.

TABLE XVI

Comparison of Group I and Group II in the Post-Test - Unit 2

	MEAN POST-TEST	S.E. M.	S.D.	DIFF. M_1-M_2	S.E. DIFF.	C.R.
Group I	22.35	.89	4.93	1.16	1.36	.85
Group II	21.19	1.03	4.70			

Table XVI compares the post-test of Group I with the post-test of Group II. The mean for Group I is 22.35. The

mean for Group II is 21.19. The difference of the means is 1.16 in favor of Group I. The critical ratio .85 shows there is no statistical significance between either group. There are sixty chances in one hundred that it represents a true difference.

TABLE XVII

Comparison of Group I and Group II in the Post-Test - Unit 3

	MEAN POST-TEST	S.E. M.	S.D.	DIFF. M_1-M_2	S.E. DIFF.	C.R.
Group I	20.39	.63	3.53	2.27	1.14	1.99
Group II	18.52	.95	4.36			

Table XVII compares Group I and Group II in the post-test for Unit 3. The mean for Group I is 20.39 and the mean for Group II is 18.52. The critical ratio 1.99 shows there is a tendency toward a statistical significance. There are ninety-four chances in one hundred that it represents a true difference.

TABLE XVIII

Comparison of Group I and Group II in the Post-Test - Unit 4

	MEAN POST-TEST	S.E. M.	S.D.	DIFF. M_1-M_2	S.E. DIFF.	C.R.
Group I	20.72	.51	2.82	1.52	1.99	1.83
Group II	19.20	.65	2.97			

A comparison of Group I and Group II in the post-test unit 4 is shown in Table XVIII. The mean for Group I is 20.72. The mean for Group II is 19.20. The difference of the means is 1.52. The critical ratio 1.83 indicates there is a tendency toward a statistical significance. There are ninety-two chances in one hundred that it represents a true difference.

TABLE XIX

Comparison of Group I and Group II in the Post-Test - Unit 5

	MEAN POST-TEST	S.E. M.	S.D.	DIFF. M_1-M_2	S.E. DIFF.	C.R.
Group I	14.48	.80	4.46	.34	.83	.41
Group II	14.14	.23	1.05			

In Table XIX we have the comparison of Group I and Group II in the post-test Unit 5. The mean for Group I is

14.48. The mean for Group II is 14.14. The critical ratio .41 shows there is no statistical significance. There are only thirty chances in one hundred that it represents a true difference.

TABLE XX

Comparison of Group I and Group II in the Post-Test - Unit 6

	MEAN POST-TEST	S.E. M.	S.D.	DIFF. M_1-M_2	S.E. DIFF.	C.R.
Group I	15.90	.80	4.48	2.28	1.42	1.61
Group II	13.62	1.17	534			

Table XX gives the comparison of Group I and Group II in the Post-Test Unit 6. The mean for Group I is 15.90. The mean for Group II is 13.62. The critical ratio 1.61 shows there is no statistical significance. There are eighty-eight chances in one hundred that it represents a true difference.

TABLE XXI

Comparison of Group I and Group II in the Post-Test - Unit 7

	MEAN POST-TEST	S.E. M.	S.D.	DIFF. M_1-M_2	S.E. DIFF.	C.R.
Group I	19.00	1.06	5.90	1.04	1.24	.84
Group II	17.96	.65	3.10			

Table XXI compares Group I and Group II in the Post-Test Unit 7. The mean for Group I is 19.00 and the mean for Group II is 17.96. The difference of the means is 1.04. The critical ratio .84 indicates that there is no statistical significance. There are fifty-eight chances in one hundred that it represents a true difference.

TABLE XXII

Comparison of Group I and Group II in the Post-Test - Unit 8

	MEAN POST-TEST	S.E. M.	S. D.	DIFF. M_1-M_2	S.E. DIFF.	C.R.
Group I	14.94	1.11	6.19	.44	1.26	.35
Group II	15.38	.59	2.72			

Table XXII compares Group I and Group II in the Post-Test Unit 8. The mean for Group I is 14.94. The mean for Group II is 15.38. The critical ratio .35 means there is no statistical significance. There are twenty-six chances in one hundred that it represents a true difference.

CHAPTER IV

CHAPTER IV

SUMMARY AND CONCLUSIONS

Summary:

The purpose of this study was to determine the effectiveness in the use of workbooks for the teaching of First Aid. A scientific analysis was made to elucidate the effectiveness of workbooks for the instruction of pupils.

In order to obtain an objective measure of the amount of improvement that had taken place, Group I (with workbooks) and Group II (without workbooks) were tested. The tests - pretests, unit tests, and post-tests - were administered to the thirty-one pupils in Group I and twenty-one pupils in Group II.

Both groups were matched according to Intelligent Quotient as was mentioned in the Procedure of this study. The Intelligent Quotient was approximately the same with a slight difference in favor of Group I. The mean Intelligent Quotient for Group I was 109.05; for Group II, 106.00.

Those pupils selected for the study were the seventh grade girls. It is only at this grade level that a separate health course is provided in the West Junior High School, Watertown, Massachusetts. The experiment extended over twenty class periods of forty minutes each once a week. The time element remained uniform for both groups. If a pupil was absent one or more periods, she was required to make up the time lost before the final test was given.

The author's study was based on the two postulates:

1. A comparison of the gain of the workbook group and the non-workbook group in respect to the pretest and the unit test was made.

2. A comparison of the gain of the group with the workbook with the gain of the group without the workbooks between the pretest and the post-test was made.

Conclusions:

1. Tables IX - XV on pages 18 - 22, show that Group I did far superior work to Group II after studying each unit except for Unit 6 where no statistical significance was shown. There was greater efficiency in learning by Group I.

2. On the basis of the post-test which was given, it may be concluded that there was a tendency toward a statistical significance to justify the use of the workbook in this, or similar situations, as shown in Tables XVIII - XXII, pages 22 - 26. In order to verify this tendency toward the justified use of the workbook, the author deems it wise to recommend such a study in health for five periods a week, forty minutes in length, for one semester.

3. The Intelligent Quotients, based on the Pintner-Intermediate B test and Achievement Mark computed on the basis of the Progress B type achievement test, were practically the same. The mean Intelligent Quotient for Group I (with workbooks) was 109.05, and for Group II (without workbooks) was 106.00 as shown in Table I on page 13. The

critical ratio 1.05 indicates there is no statistical significance.

4. Both groups started their study of First-Aid with the same amount of First-Aid knowledge as indicated in Tables II - VIII on pages 14 - 17. There was no significant difference in knowledge.

5. Group I, using the workbooks, accomplished the material in half the time as Group II, those without workbooks. This great time-saving device allows more time for further knowledge.

6. By using the workbook:
   a. Subject matter can be covered by more efficient means.
   b. The teacher can develop a topic in logical and concise form.
   c. Pupils can receive information in logical and concise form.

7. Pupil benefits:
   a. Health workbooks help to solve the specific problems and enable children to find answers to their questions.
   b. Because of the problem motivation, interest was shown; there was a very enthusiastic response by Group I. Problem-solving method makes things more meaningful to the child. There is more enthusiasm when there is a problem to be solved.
   c. Satisfaction and pride in group accomplishment were shown on the part of the group with the workbooks.

8. Assets of the workbook for the teacher:
   a. Teaching with a workbook is more enjoyable,

easier, and more interesting.

b. With the use of this well-planned workbook even an untrained health educator would be able to do a good teaching job.

c. Questions, answers, and tests included in the mentioned workbook are invaluable to the trained teacher and are equally as valuable to the untrained health educator.

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TESTS

Unit 2 - How Your Body Works

Directions: Each statement below is followed by several parts. Place a plus sign (+) in the space at the right beside each answer which correctly completes the statement. In some cases more than one answer correctly completes the statement.

1. A purpose of the bones of the skeleton is
   (a) to protect the muscles (.....)
   (b) to give shape to the body (.....)
   (c) to protect the vital organs such as the heart and lungs (.....)
   (d) to form cavities for the vital organs (.....)

2. One of the four main parts of the body is
   (a) the head (.....)
   (b) the pelvis (.....)
   (c) the arms (.....)
   (d) the legs (.....)

3. The bones of the skull
   (a) are tightly joined together (.....)
   (b) are curved (.....)
   (c) protect the brain (.....)
   (d) are soft (.....)

4. The vertebrae which make up the spine
   (a) extend from the head to the bottom of the trunk (.....)
   (b) permit the back to bend in any direction (.....)
   (c) protect the spinal cord (.....)
   (d) are long bones (.....)

5. The bones of the pelvis
   (a) are curved (.....)
   (b) are shaped like a cage (.....)
   (c) help to hold up the stomach (.....)
   (d) fasten to the long bones of the legs (.....)

6. The muscles in your body
   (a) help you to move (.....)
   (b) are of different sizes and shapes (.....)
   (c) are fastened to bones by ligaments (.....)
   (d) can all be controlled at will (.....)

7. A food which contains much protein is
   (a) fat meat (.....)
   (b) eggs (.....)
   (c) beans (.....)
   (d) apples (.....)
   (e) cheese (.....)
   (f) fish (.....)

8. A food which contains large amounts of carbohydrates is
   (a) milk (.....)
   (b) lean meat (.....)
   (c) ripe fruits.....)
   (d) cereals (.....)

9. The digested food in liquid form is taken into the blood stream through the thin walls of the blood capillaries
   (a) in the food tube (.....)
   (b) in the large intestine (.....)
   (c) in the small intestine (.....)
   (d) in the stomach (.....)

10. The air you breathe in passes from your
    (a) nose and mouth directly into bronchial tubes (.....)
    (b) throat into your windpipe (.....)
    (c) windpipe into your bronchial tubes (.....)
    (d) bronchial tubes into the air sacs in your lungs (.....)

11. One purpose of the red cells in the blood is to
    (a) carry oxygen (.....) (c) carry carbon dioxide (.....)
    (b) fight germs (.....) (d) provide body heat (.....)

12. A part of the nervous system of the body is the
    (a) spinal cord (.....) (c) brain (.....)
    (b) vertebrae (.....) (d) nerves (.....)

Unit 3 - The Control of Germs

Directions: Each statement below is followed by several parts. Place a plus sign (+) in the space at the right beside each answer which correctly completes the statement. In some cases more than one answer correctly completes the statement.

1. The tiny living plants in the microscopic world are called
(a) germs (.....)
(b) bacteria (.....)
(c) microbes (.....)
(d) atoms (.....)

2. Bacteria live by the millions in
(a) water (.....)
(b) very dry places (.....)
(c) soil (.....)
(d) the air (.....)
(e) gardens (.....)

3. Some kinds of bacteria
(a) are helpful (.....)
(b) grow on food (.....)
(c) cause diseases (.....)
(d) keep food from spoiling (.....)

4. To grow best, germs need
(a) food (.....)
(b) low temperatures (.....)
(c) moisture (.....)
(d) light (.....)

5. Germs are killed by
(a) cold temperatures (.....)
(b) moisture (.....)
(c) boiling temperatures (.....)
(d) sunlight (.....)

6. Germs increase in number by
(a) dividing in fourths (.....)
(b) dividing in eighths (.....)
(c) dividing in half (.....)
(d) by growing larger (.....)

7. One germ can become a billion just like itself in about
(a) one hour (.....)
(b) three hours (.....)
(c) five hours (.....)
(d) twelve hours (.....)

8. After disease germs enter your body they find conditions most favorable to growth such as
(a) warmth (.....)
(b) moisture (.....)
(c) dryness (.....)
(d) darkness (.....)

9. An indirect way in which germs are spread is through
(a) milk (.....)
(b) droplets of saliva (.....)
(c) water (.....)
(d) knives and forks (.....)

10. Insects which spread diseases mostly by carrying germs inside their bodie are
(a) flies (.....)
(b) mosquitoes (.....)
(c) ants (.....)
(d) fleas (.....)
(e) cockroaches (.....)
(f) lice (.....)

11. Disease germs in your body cause your blood to make
(a) toxins (.....) (c) antibodies (.....)
(b) toxoids (.....) (d) serums (.....)

12. Your body resistance to disease may be lowered by
(a) worry (.....) (c) improper food (.....)
(b) vaccines (.....) (d) a lack of sleep (.....)

Unit 4 - General First-Aid Care

Directions: Each statement below is followed by several parts. Place a plus sign (+) in the space at the right beside each answer which correctly completes the statement. In some cases more than one answer correctly completes the statement.

1. When you are helping to give first aid, you should
(A) give the injured person a drink of water at once (.....)
(b) keep the injured person lying down (.....)
(c) have the injured person sit up in most cases (.....)
(d) keep the injured person lying flat on his back (.....)

2. An injury which may prove fatal in a very short time is
(a) serious bleeding (.....)
(b) broken bones (.....)
(c) stoppage of breathing (.....)
(d) poisoning (.....)

3. In giving first aid, the body of an injured person should be kept warm with
(a) a blanket (.....)
(b) a coat (.....)
(c) a hot water bottle (.....)
(d) an electric heating pad (.....)

4. Shock is usually caused by
(a) injury to the body (....)
(b) fear (.....)
(c) anger (.....)
(d) electricity (.....)

5. A symptom of shock
(a)a red face (.....)
(b) a cold skin (.....)
(c) an ashy color (.....)
(d) shallow and hurried breathing (.....)

6. In giving first aid for a person in shock
(a) place him on his back with his head low in all cases (.....)
(b) keep him warm (.....)
(c) hurry him to a hospital before doing anything (.....)
(d) give him a stimulant if he is conscious (.....)

7. The general first aid care for an unconscious person is to
(a) put water on his face (.....)
(b) cover him with a blanket (.....)
(c) call a doctor (.....)
(d) place him with his head low (.....)

8. When a person is about to faint
(a) his face becomes red (.....)
(b) he may feel weak (.....)
(c) he may be covered with a cold sweat (.....
(d) he may feel dizzy (.....)

9. In giving first aid for a person who has fainted
(a) place him on his back with his head low (.....)
(b) give him a stimulant at once (.....)
(c) give him plenty of fresh air (.....)
(d) place cold cloths on his chest and forehead (.....)

10. In calling for a doctor for an injured person, it is important to

to tell

(a) the name of the person (.....)
(b) the exact location (.....)
(c) the time of day (.....)
(d) the cause of the injury (.....)
(e) what is being done (.....

Unit 5 - Dressings and Bandages

in First Aid

Directions: Place a plus sign (+) in the space before each sentence that is true and a minus sign (-) in the space before each sentence that is not true.

1. A bandage is the material placed on an open wound. (.....)
2. A compress is used to hold a bandage on a wound. (.....)
3. A dressing or compress should be sterile. (.....)
4. A bandage does not need to be sterile. (.....)
5. Gauze is best as a compress or dressing because it lets air get to the wound. (.....)
6. Gauze is usually sterilized by steam under pressure. (.....)
7. You can sterilize cloth by scorching it with a hot iron. (.....)
8. Cloth can be sterilized by boiling it. (.....)
9. A dressing should be several times larger than the wound. (.....)
10. Bandages are used most frequently to help control bleeding. (.....)
11. Triangular bandages can be made from handkerchiefs, sheets, or napkins. (.....)
12. Four-tailed bandages are used mostly for wounds on the arms and hands. (.....)
13. A square or reef knot should be used to tie all triangular bandages. (.....)
14. Swelling often makes a bandage too tight. (.....)
15. Wet bandages should be used in first aid for certain kinds of wounds. (.....)
16. An arm sling is used to support the arm. (.....)
17. An open triangular bandage for the hand is used to hold a dressing or compress when the wound is small. (.....)
18. An open triangular bandage for the chest is good to use for large wounds caused by burns. (.....)
19. A cravat bandage for the head is often used to hold a large dressing in place. (.....)
20. The cravat bandage for the ear is used to hold a dressing on the ear. (.....)

Unit 6 - Serious First - Aid Emergencies

Directions: Each statement below is followed by several parts. Place a plus sign (+) in the space at the right beside each answer which correctly completes the statement. In some cases more than one answer correctly completes the statement.

1. The body of a grown person contains about
(a) five or six gallons of blood (.....)
(b) three or four quarts of blood (.....)
(c) five or six quarts of blood (.....)
(d) eight or ten quarts of blood (.....)

2. Bleeding from small cuts and scratches
(a) is usually serious if it is not stopped at once (.....)
(b) may be stopped by clotting (.....)
(c) may wash out dirt and germs (.....)
(d) is always harmful (.....)

3. The pressure of the blood is much greater
(a) in the veins (.....) (c) in the arteries (.....)
(b) in the capillaries (.....) (d) near the heart (.....)

4. First aid for severe bleeding is
(a) to stop the bleeding with digital pressure (.....)
(b) to call a doctor (.....)
(c) to stop the bleeding with a pressure-bandage (.....)
(d) to get the person to a hospital before doing anything (.....)

5. Stoppage of breathing is frequently caused
(a) by drowning (.....) (c) by electric shock (.....)
(b) by fainting (.....) (d) by poisonous gas (.....)

6. Carbon monoxide gas is found in
(a) automobile exhaust gas (.....)
(b) the fumes of fires and coal stoves (.....)
(c) the gas used in stoves (.....)
(d) the stale air in a closed room (.....)

7. Carbon monoxide gas is
(a) colorless (.....) (c) red (.....)
(b) odorless (.....) (d) very irritating
to the nose (.....)

8. General symptoms of drowning, electric shock, and gas poisoning are
(a) a red color (.....) (c) a strong pulse (.....)
(b) unconsciousness (.....) (d) a stoppage of breathing
(.....)

9. If you are the onlt one present to give first aid when someone has stopped breathing
(a) call a doctor before doing anything (.....)
(b) start artificial respiration at once (.....)
(c) cover the person with a blanket before giving artificial respisation (.....)
(d) wait a few minutes to see if the person starts breathing again.....)

10. Artificial respiration should be given at the rate of
    (a) twenty - five to thirty times a minute (.....)
    (b) twelve to fifteen times a minute (.....)
    (c) ten to twelve times a minute (.....)
    (d) eighteen to twenty times a minute (.....)

11. General symptom~~s~~ of poisoning is
    (a) vomiting (.....) (c) unconsciousness (.....)
    (b) stomach cramps (.....) (d) (.....)

12. In giving first aid for poisoning
    (a) call a doctor before doing anything (.....)
    (b) give the person four or five glasses of warm water (.....)
    (c) keep the person lying down (.....)
    (d) keep the persn warm with a hot water bottle (.....)

Unit 7 - First Aid Care of Common Wounds

Directions: Each statement below is followed by several parts. Place a plus sign (+) in the space at the right beside each answer which correctly completes the statement. In some cases more than one answer correctly completes the statement.

1. A torn wound is likely to be made by
(a) machinery (.....) (c) a razor blade (.....)
(b) a saw (.....) (d) a pin (.....)

2. A punctured wound is likely to be made by
(a) a bullet (.....) (c) a nail (.....)
(b) a blunt tool (.....) (d) broken glass (.....)

3. A clean cut wound is usually made by
(a) a sharp knife (.....) (c) broken glass (.....)
(b) a sharp saw (.....) (d) a razor blade (.....)

4. A main danger in small wounds is
(a) severe shock (.....) (c) infection (.....)
(b) serious bleeding (.....) (d) nausea (.....)

5. It is almost impossible to get a wound without
(a) having serious bleeding (.....)
(b) its getting infected (.....)
(c) many germs entering (.....)
(d) serious shock following (.....)

6. An antiseptic is used
(a) to keep germs from getting into a wound (.....)
(b) to kill germs (.....)
(c) largely to wash germs out of a wound (.....)
(d) only for large wounds (.....)

7. A main purpose in giving first aid for small wounds is
(a) to keep more germs from entering the wound (.....)
(b) to prevent shock (.....)
(c) to prevent infection (.....)
(d) to keep the person from fainting (.....)

8. A symptom of infection is
(a) white streaks (.....) (c) pain (.....)
(b) redness (.....) (d) pus (.....)

9. In giving first aid for an infected wound
(a) call a doctor at once (.....)
(b) place the infected part in cold water (.....)
(c) put warm compresses on the infected part (.....)
(d) put the infected part in warm water (.....)

10. Tetanus or lockjaw germs are found
    (a) in manure (.....)
    (b) on lawns (.....)
    (c) in every punctured wound (.....)
    (d) in fields (.....)

11. In giving first aid for an animal bite
    (a) get the person to a doctor (.....)
    (b) wash the wound with soap and water (.....)
    (c) put hot compresses on the wound (.....)
    (d) put a sterile compress and bandage on the wound (.....)

12. Objects such as particles of sand or dirt may be removed from the eye
    (a) by tears (.....)
    (b) by pulling the upper lid over the lower lid (.....)
    (c) with the corner of a clean handkerchief (.....)
    (d) by washing the eye with boric acid solution (.....)

Unit 8 - First Aid for Injuries from Heat and Cold

Directions: Place a plus sign (+) in the space before each sentence that is true and a minus sign (−) in the space before each sentence that is not true.

1. Injuries from strong chemicals on the skin are due to heat. (.....)
2. When the clothing of a person catches fire, the flames should be smothered. (.....)
3. If there is no blanket or heavy cloth to roll up in when your clothing catches fire, run for water. (.....)
4. In first-degree burns the skin is blistered. (.....)
5. A second-degree burn is one which is deep and in which much tissue is destroyed. (.....)
6. A third-degree burn is always more serious than a second degree burn. (.....)
7. In giving first aid for a second degree burn, put on a burn ointment. (.....)
8. In giving first aid for second and third degree burns, use a slightly warm baking soda solution. (.....)
9. Shock may be present in the case of extensive first-degree burns (.....)
10. If you should spill a strong acid on your skin, go to a doctor before doing anything. (.....)
11. First degree burns are easily infected. (.....)
12. An antiseptic should be applied to a second or third dggree burn. (.....)
13. Absorbent cotton is good to use directly on a burn. (.....)
14. The first - aider should open blisters caused by burns. (.....)
15. A burn should be washed in cold water soon after it happens. (.....)
16. Sunburn is caused by heat. (.....)
17. Mild sunburn should be given the same kind of first aid as any other mild first - degree burn. (.....)
18. Sunstroke is usually caused by indoor heat. (.....)
19. A slow pulse is usually a symptom of sunstroke. (.....)
20. In giving first aid for sunstroke cold, wet cloths or an ice bag should be put on the person's head. (.....)
21. Heat exhaustion is usually caused by outdoor heat. (.....)
22. A pale skin is a symptom of heat exhaustion. (.....)
23. In heat exhaustion the body of a person should be kept warm. (.....)
24. Frostbite usually begins with a feeling of pain. (.....)
25. A frostbite should be rubbed with ice or snow. (.....)
26. Too much heat before a frozen part is thawed may cause pain and sometimes permanent harm. (.....)

Date Due

APR 27 1949
MAY 19 1949
APR 24 1950
OCT 10 1950
JAN 29 1951
FEB 26 1951
MAY 16 1951
NOV 23 1953
AUG 11 1954
APR 16 1955
NOV 21 1957
NOV 5 1960

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Ed.

Service Paper
Mackey, H.T.
1948

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